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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/479,852	01/07/2000	ELFIDO COSS JR.	2000.021100	3612

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EXAMINER

RODRIGUEZ, PAUL L

ART UNIT	PAPER NUMBER
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2125

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/479,852

Applicant(s)

COSS JR. ET AL.

Examiner

Paul L Rodriguez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed 2/2/04 has been received and considered. Claims 1-36 are presented for examination.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6, 23 and 25-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Flinchbaugh et al (U.S. Pat 4,861,419). The claimed invention reads on Flinchbaugh et al as follows:

Flinchbaugh et al discloses (claim 1) a method, for dynamically generating trace data reports in a semiconductor fabrication process (col. 4 lines 7-18, col. 6 lines 44-49, col. 7 lines 11-20, col. 15 lines 50-52, col. 17 lines 49-68, defined by the applicant in the specification as “reports certain parameters during the tool’s operation”) employing fault detection control (col. 3 lines 39-56, col. 6 lines 42-49, 65-67, col. 8 lines 24-40, col. 17 lines 11-17), the method comprising receiving specified data for a trace data report (col. 6 lines 65-67), the specified data including at least one of a parameter, a trigger, and a frequency for the trace data report (col. 1 lines 49-65, col. 8 lines 32-34, col. 16 lines 41-49), automatically generating from a fault detection controller (reference number 40) a request to a report generator for the trace data report, the request including the specified data (col. 9 lines 3-22, col. 10 line 28 – col. 11 line 20,

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col. 17 lines 49-68), formulating the trace data report responsive to the request (col. 4 line 53 – col. 5 line 6, col. 7 lines 11-20, col. 9 lines 16-22) and returning the formulated trace data report from the report generator based on the request (col. 4 line 53 – col. 5 line 6, col. 7 lines 11-20, col. 9 lines 3-22), (claim 23) a semiconductor fabrication processing system (figure 1) comprising a fabrication tool (reference number 10) capable of providing at least one of specified data and a trace data report (col. 6 lines 65-67, col. 8 lines 52-55, col. 16 lines 41-48), a fault detection controller (reference number 40) implementing a fault detection control (col. 9 lines 3-36), the fault detection controller being capable of automatically generating a request for the trace data report, the request including the specified data (col. 9 lines 3-22, col. 10 line 28 – col. 11 line 20, col. 17 lines 49-68), a report generator capable of requesting at least one of the specified data and the trace data report from the fabrication tool (col. 6 lines 65-67, col. 8 lines 32-34, 52-55, col. 16 lines 41-48), and capable of, if the specified data is requested from the fabrication tool, providing the trace data report (col. 4 lines 53 – col. 5 line 6, col. 7 lines 11-20, col. 9 line 16-22), and an operator interface for receiving specified data for the trace data report (col. 5 lines 2-6, col. 7 lines 11-20, col. 9 lines 5-18, col. 17 lines 66-67), the specified data including at least one of a parameter, a trigger, and a frequency for the trace data report (col. 1 lines 49-65, col. 8 lines 32-34, col. 16 lines 41-49) and to which the trace data report may be returned from at least one of the report generator and the fabrication tool (col. 8 lines 52-55), (claim 2) wherein receiving the specified data for the trace data report includes receiving the specified data by manual input (col. 11 lines 6-10, col. 15 lines 44-52), (claim 3) wherein requesting the trace data report includes consulting a data store of available parameters (col. 18 lines 34-38), (claim 4, 26) wherein the data store comprises at least one of a database, a list, and

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a file (col. 18 lines 41-44), (claim 5, 27) wherein the report generator populates the data store with the available parameters (col. 19 lines 23-27), (claim 6) wherein formulating the trace data report responsive to the request includes gathering specified data from a fabrication tool)col. 6 lines 65-67, col. 8 lines 32-34, 52-55, col. 16 lines 41-48), (claim 25) further comprising a data store of available parameters that may be received as the specified data (col. 18 lines 34-50), (claim 28) wherein at least two of the fault detection controller, the operator interface, and the report generator reside on the same computer (reference number 40, col. 9 lines 22-28), and (claim 29) wherein the fault detection controller and the report generator reside on different computers (col. 9 lines 22-28, would be inherent). Examiner would like to point out that any reference to specific figures, columns and lines should not be considered limiting in any way, the entire reference is considered to provide disclosure relating to the claimed invention.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 7-22, 24 and 30-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flinchbaugh et al (U.S. Pat 4,861,419) in view of Turner et al (U.S. Pat 5,576,629).

Flinchbaugh et al teaches most all of the instant invention as applied to claims 1-7, 23 and 25-29 above and also teaches a computer programmed to perform a method for generating data reports (reference number 40) and a computer readable, program storage medium encoded with instructions that when executed by a computer perform a method for generating data reports (col. 9 lines 3-28). Flinchbaugh et al fails to teach (claim 7, 15) a computer programmed to perform a method in an advanced process control semiconductor fabrication process, (claim 24, 31) wherein the operator interface includes a graphical user interface, (claim 30) an advanced process control, semiconductor fabrication processing system, comprising means for fabricating a wafer, a fabricating means being capable of providing at least one of specified data and a trace data report, means for implementing a fault detection control, the fault detection control means being capable of automatically generating a request and means for interfacing with an operator, through which an operator may specify the data.

Turner et al teaches (claim 7, 15) a computer programmed to perform a method in an advanced process control semiconductor fabrication process (abstract) (claim 24, 31) wherein the operator interface includes a graphical user interface (col. 8 lines 48-63, col. 10 lines 11-17), (claim 30) an advanced process control, semiconductor fabrication processing system (abstract), comprising means for fabricating a wafer (reference number 20), a fabricating means being

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capable of providing at least one of specified data and a trace data report (figures 11, 20-28), means for implementing a fault detection control (figure 9, col. 10 line 11 – col. 12 line 61), the fault detection control means being capable of automatically generating a request (reference number 128, 130, col. 10 lines 36-48) and means for interfacing with an operator (reference number 86, col. 8 lines 48-63, col. 10 lines 11-17), through which an operator may specify the data (col. 10 lines 11-17).

Flinchbaugh et al and Turner et al are analogous art because they are both related to fault detection and control in the fabrication of semiconductor devices.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the advanced process control operations of Turner et al in the abnormality detection apparatus and method of Flinchbaugh et al because Turner et al teaches a control application for a wide variety of electronic device fabrication, the precision of plasma processing that the present invention provides makes statistical process control (SPC) feasible for a wide variety of electronic device fabrication processes and significantly increase process uniformity for electronic devices (col. 4 lines 45-67).

Response to Arguments

6. Applicant's arguments filed 2/2/04 have been fully considered but they are not persuasive.

The amendment filed corrected the drawing, specification, claim objections and claim rejections under 35 USC § 112, the those objections and rejections have been withdrawn.

Regarding the argument relating to the rejection based 35 USC § 102 and 103. Applicant argues basically one point, that Flinchbaugh et al does not teach a request between a fault detection controller and a report generator. The Examiner will present various aspects, items, and teachings of Flinchbaugh et al and items and aspects considered to be inherent features of Flinchbaugh et al that lead the Examiner to the conclusion that Flinchbaugh et al does provide adequate support for the limitation of "...a request between a fault detection controller and a report generator".

- The Examiner relies upon reference number 40 to disclose the fault detection controller and reference number 38 as one form of a report generator, also reference number 36 is considered another form of a report generator because it generates and supplies data used in preparing an actual trace data.
- Col. 9 lines 18-22 teach that the controller 40 provide signals to various equipment including "other means as desired".
- Col. 9 lines 2-33 teach that the controller 40 does not store the actual EPT (End Point Trace) it only stores programs, subroutines, reference end point traces and other data.
- Figure 3 depicts programmed operation of controller 40, which performs the operation of "signal-to-symbol transformer", Figure 5 reference number 82 is one of the tasks called "Get Actual EPT".
- Figure 4 depicts programmed operation performed by controller 40 that details the process related to getting the actual EPT. Col. 10 line 28 – col. 11 line 20 states that the controller performs function 70 in a fashion similar to a program

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loop, that each function 72-80 are processed over and over collecting data in order to develop the actual EPT. Functions 72-76 each perform a "Get" operation for the collection of certain information.

- Figure 1 shows that the reference number 40 has bi-directional communications, having arrows into and out of reference number 40.
- Finally, it is well known in the art of computer control that data communications are performed through a series of requests and responses, serial or parallel, asynchronous or synchronous data transfers are performed using some type of command used to ask for or request a response from another device.

Therefore, based upon the above, the Examiner has concluded that controller 40, which communicates with various elements of the system and performs the operation of obtaining the actual EPT, would inherently request actual trace information when performing the "Get" tasks as depicted in figures 3-5. The controller 40 proceeds to use the actual EPT, as shown in figure 5, to formulate trace data reports as a function of the fault detection controller. It is from these points, both explicit and inherent that the Examiner contends that Flinchbaugh et al does disclose a request between a fault detection controller and a report generator. While the controller 40 performs the fault detection process, elements such as 36 function as a report generator, generating data that is used for the trace data report. Based upon this interpretation of the claim language the Examiner contends that Flinchbaugh et al does read on the claimed invention and the rejection is maintained.

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7. Examiner would like to address a typographical error made in the previous office action. It should be clear from the body of the rejection under 35 USC § 102, that the rejection should have covered claims 1-6, 23 and 25-29 and the rejection under 35 USC § 103 should have covered claims 7-22, 24 and 30-36. Claim 7 being inadvertently placed in the wrong grouping. Because this was merely typographical error the change to the claim numbers reflected in this office action should not be considered in any way as a changed in the grounds of rejection.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Miller et al (U.S. Pat 6,697,691) – teaches real time trace data collection and the generation of pass fail reports.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

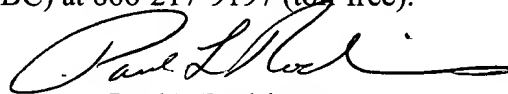
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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul L Rodriguez whose telephone number is (703) 305-7399. The examiner can normally be reached on 6:00 - 4:30 T-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P Picard can be reached on (703) 308-0538. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Paul L Rodriguez
Examiner
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PLR
3/26/04